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REMARKS

In the Office Action dated October 18, 2002, which is marked final, the Examiner objects to the specification and the drawings. The Examiner rejects claims 1 and 9 under 35 U.S.C. § 112, first paragraph. Finally, the Examiner rejects claims 1-2, 5, 9-11, 16 and 19 under 35 U.S.C. § 102(b) and rejects claims 3-4, 6-8, 12-15, 17, 18 and 20 under 35 U.S.C. § 103(a). After entry of this amendment, claims 1-20 are pending in this application. Claims 1 and 9 have been amended, and no claims have been added or canceled. Reconsideration of the application as amended is requested.

With this Amendment, one correction to the specification has been made to clarify that the reference to a Figure 1 in the background section is a reference to prior art Figure 1 of DE-OS 35 39 390. In addition, a reference to a plane 11 incorporated into Fig 1 as described below has been added. Finally, a correction has been made described below with respect to the Examiner's objection under 35 U.S.C. § 132. It is respectfully submitted that these changes add no new matter to the application as filed. The Examiner's approval of these proposed changes is respectfully requested.

The Examiner objects to the specification under 35 U.S.C. § 132, stating that the feature that the sensors lie in the same plane as the carbon brushes is added material not supported by the original disclosure. The Examiner states that the Applicants are required to cancel the new matter in reply to the Office Action. It is respectfully submitted that the Examiner is not correct that this feature is new matter to the disclosure. As explained in response to the last Office Action, support for this feature is found in the application as originally filed. On page 2, starting at line 34, the Applicants state that "The special advantage of the invention lies in the fact that the sensor, especially a Hall sensor, can lie in the same plane as the carbon brushes." Since the Applicants further state that "[t]his facilitates shortening the length of the motor," (see pages 2, line 35 to page 3, line 1), it is clear that the sensor must share a radially-extending plane with the carbon brushes. On page 4, starting at line 29, the Applicants further state that "The advantage of the invention lies particularly in the fact that the sensors 8, 9 can lie in the same plane as the carbon brushes of the electrical machine. The constructive length of the electrical machine can be shortened thereby." This again points to a sensor and the carbon brushes sharing a radially-

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extending plane. This paragraph of the specification has been clarified to indicate that, in Fig. 1, only one sensor, sensor 8, lies in the plane 11, which is described hereinafter.. Although the feature of a sensor lying in a same plane with the carbon brushes was not incorporated into the claims as originally filed, it is fully supported by the specification as originally filed.

The Examiner similarly rejects the proposed drawing correction as violating 37 C.F.R. 1.121(a)(6) because the original disclosure does not support the showing of the carbon brush 10. Again, the Applicants respectfully submit that such a feature is fully supported by the specification as originally filed for the reasons stated above. Therefore, the Applicants have attached herewith a Request for Drawing Change Approval showing the carbon brush 10 in relation to sensors 8, 9. In addition, the Examiner objects to the drawings under 37 C.F.R. 1.83(a) as not showing the feature of a "plane." As is clear from the specification, the plane is merely a common radially-extending plane between a sensor, here sensor 8, and a carbon brush 10. Therefore, one plane 11 has been added to the view of Fig. 1 for illustrative purposes. In Fig. 3, the incorrect reference numeral seven (7) has been deleted to conform to the specification and the remainder of the drawing figures. The Examiner's approval of the proposed drawing changes is respectfully submitted.

The Examiner rejects claims 1 and 9 under 35 U.S.C. § 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 9 clarifies that the sensor is positionable in a same radially-extending plane as the at least one carbon brush. Claim 1 now states that at least one of the sensors lies in a radially-extending plane coincident with the carbon brushes, further clarifying this feature. It is respectfully submitted that, for the reasons set forth above, the position of carbon brush(es) with respect to the sensor(s) is fully supported by the application as originally filed.

The Examiner continues to reject claim 1 and its dependent claims 2 and 5 under 35 U.S.C. § 102(b) as being anticipated by Materne et al., U.S. Patent No. 5,331,257. It is respectfully submitted that Materne, et al., does not teach or suggest the invention as recited in claim 1. First, it is respectfully submitted that Materne et al. fails to teach or suggest the feature

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that the segments of the commutator are formed of an electrically conductive material penetrable by a magnetic field of the commutator such that a basic body of the commutator bearing the segments is permanently magnetized, at least sectionally. In Materne et al., a multi-polar wheel 11 is carried on the periphery of the commutator 7. No segments of the commutator 7 are permanently magnetized. In addition, the sensors 20, 22 of Materne et al. are spaced from the carbon brushes shown generally by brush holders 44, 45 along the axis of the commutator 7. (Materne et al., Figs. 4 and 5). A plane in which the carbon brushes lie is thus longitudinally-spaced from a plane in which the sensors lie. The Examiner points to the printed circuit 5 as a plane common to the sensors and the carbon brushes, but it is respectfully submitted that the printed circuit 5 is spaced between the two. Thus, Materne et al. fails to teach or suggest the feature of claim 1 wherein at least one of the sensors lies in a radially-extending plane coincident with the carbon brushes. For the foregoing reasons, the invention of claim 1 and its dependent claims 2 and 5 is not anticipated or rendered obvious by Materne et al.

The Examiner also rejects claim 9 and its dependent claims 11, 16 and 19 under 35 U.S.C. § 102(b) as being anticipated by Materne et al. It is respectfully submitted that Materne et al. fails to teach or suggest the feature of claim 9 wherein the sensor is positionable in a same radially-extending plane as the at least one carbon brush. It is respectfully submitted that this feature is neither taught nor suggested by Materne et al. In Materne et al., as previously explained, the brushes enclosed in the brush holders 44, 45 are spaced from the sensors 20, 22 by the printed circuit 5. Thus, the invention as defined by claim 1 and its dependent claims 11, 16 and 19 is neither anticipated nor rendered obvious by Materne et al.

Claims 3-4, 6, 8, which depend from claim 1, and claims 12-15, 17 and 18, which depend from claim 9, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Materne et al., in view of Knappe, U.S. Patent No. 5,565,721. It is respectfully submitted that neither Materne, et al., nor Knappe, taken singularly or in any permissible combination, teach or suggest the invention as recited in either claim 1 or claim 9. As stated above, Materne et al. does not teach or suggest the feature of claim 1 wherein at least one of the sensors lies in a radially-extending plane coincident with the carbon brushes and the feature of claim 9 wherein the sensor is positionable in a same radially-extending plane as the at least one carbon brush. Knappe does

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not overcome these deficiencies. In particular, the Hall probes 9, 10 are longitudinally-spaced from the brushes in the brush plate 13. (Knappe, Fig. 1). It is therefore submitted that each of claim 1 and claim 9 patentably defines over the cited references and is in suitable condition for allowance, as is each of their dependent claims 3-4, 6, 8, 12-15, 17 and 18.

Finally, the Examiner rejects claims 7 and 20, which respectively depend from claims 1 and 9, under 35 U.S.C. § 103(a) as being unpatentable over Materne et al. in view of Kobman et al., U.S. Patent No. 5,962,946. Although the Examiner subsequently states Sakamaki et al. in place of Materne et al. in explaining the rejection, the Examiner's previous withdrawal of Sakamaki et al. as a reference indicates to the Applicants that a typographical error has been made. It is respectfully submitted that neither Materne et al. nor Kobman et al., taken singularly or in any permissible combination, teach or suggest the invention as recited in either claim 1 or claim 9. Specifically, the addition of Kobman et al. to Materne et al. fails to cure the deficiencies pointed out previously in Materne et al. Kobman et al. does not teach or suggest that the stator of the machine is equipped with sensors responding to the rotary status of the commutator, as recited in claim 1, so it cannot teach or suggest the feature of claim 1 wherein at least one of the sensors lies in a radially-extending plane coincident with the carbon brushes. Neither does Kobman et al. teach or suggest the feature of claim 9 wherein the sensor is positionable in a same radially-extending plane as the at least one carbon brush. Since the recited combination fails to teach or suggest all of the features of claims 1 and 9, from which claims 7 and 20 respectively depend, it is respectfully submitted that claims 7 and 20 are similarly allowable over the prior art of record.

It is respectfully submitted that the present amendment should be entered in the application under Rule 37 C.F.R. §1.116. The amendments to claim 1 merely make it unnecessary for each of the sensors to lie in a plane with the carbon brushes by only requiring one sensor to lie in a plane coincident with the carbon brushes. Claim 1 also clarifies that the plane discussed is a radially-extending plane. The amendments to claim 9 merely correct antecedent basis for a same plane and explicitly identify the plane as a radially-extending plane as discussed with respect to claim 1. It is respectfully submitted that these amendments to claims 1 and 9 do not raise new issues that would require further consideration or search and do not raise an issue of

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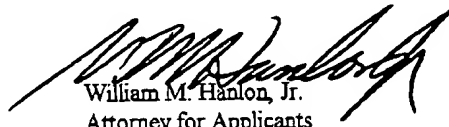
new matter as the Examiner already considered the feature of a radially-extending plane. This is clear by the Examiner's recitation of the circuit board 5 as the plane. The circuit board 5 is on a radially-extending plane. In addition, it is respectfully submitted that the Examiner considered, but failed to show, that a sensor, either sensor 20, 22 of, lay in the same plane with the at least one carbon brush of Materne et al. as previously described in claim 9. Thus, the Applicants' revision to claim 1 to require "at least one of the sensors", instead of "the sensors", to lie in a radially-extending plane coincident with the carbon brushes has already been considered and searched and similarly does not raise an issue of new matter to the claim.

It is further submitted that the proposed amendment does not present any new claims without canceling a like number of non-allowed claims, and the proposed amendment places the application in better form for appeal. It is respectfully submitted that this Amendment should be entered pursuant to 37 C.F.R. § 1.116. This Amendment traverses and overcomes all of the Examiner's objections and rejections to the application as originally filed. Reconsideration of the application as amended is requested. It is respectfully submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**In the specification:**

Please replace the paragraph on page 5, lines 14-21 with the following paragraph:

It is often desirable to determine the rotary status of the rotor or an angular value for the rotor of an electrical machine derived therefrom without regard as to whether the machine is operated in generator or motor mode. To this end, it is known from DE-OS 41 03 561 that the shaft of a motor can be connected to magnets, with Hall elements provided in the stator associated with these magnets. In DE-OS 35 39 390, magnets are mounted on the shaft of a tachogenerator, the rotary status of which is scanned by an inductive sensor, while a commutator is axially offset on the shaft (see Figure 1[.] of DE-OS 35 39 390).

Please replace the paragraph on page 4, lines 26-34 with the following paragraph:

In addition to the rotary status of the motor, it is also possible, with the device for measuring the angle of rotation according to the invention, to determine the rotary speed, the rotary acceleration or another value of the rotor derived from the rotary status. The advantage of the invention lies particularly in the fact that [the sensors 8, 9] a sensor 8 can lie in the same plane 11 as the carbon brushes 10 of the electrical machine, as shown in Figure 1. The constructive length of the electrical machine can be shortened thereby. Similarly, the sensors 8, 9 can be spatially separated farther from the interference suppressors located on the rear end shield of the motor. In this manner, the sensors 8, 9 are rendered less subject to interference from the suppressors.

In the claims:

1. (Three times amended) A device for measuring the angle of rotation for an electrical machine equipped with a commutator, a stator and carbon brushes, in which segments of the commutator are formed of an electrically conductive material penetrable by a magnetic field of the commutator, characterized in that a basic body of the commutator bearing the segments is permanently magnetized, at least sectionally, and that the stator of the machine is equipped with

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sensors responding to the rotary status of the commutator, wherein at least one of the sensors [lie] lies in [the same] a radially-extending plane [as] coincident with the carbon brushes.

9. (Twice amended) A device for measuring the angle of rotation for an electrical machine with a shaft and at least one carbon brush, comprising:

a commutator including electrically conductive segments concentrically arranged around a basic body mounted on the shaft wherein the basic body includes at least one magnetized section; and

a sensor responding to a magnetic field generated upon rotation of the commutator, wherein the sensor is positionable in [the] a same radially-extending plane as the at least one carbon brush.